Airbus UK Ltd
Environment Team
Chester Road
Broughton
Chester
CH4 0DR

28th January 2016

Our reference: **NRW/EPR/01/2016**

Beth Voice
Regulatory Officer
Natural Resources Wales
Chester Road
Buckley
CH7 3AJ

Re:

- **2015 End of year reporting**
- **2015 Performance review**
- **2016 Environmental targets**
- **REACh Compliance (including Chromium reduction)**

Dear Beth,

2015 End of year reporting
Please find attached signed copies of the reporting forms in line with the following requirements of the permit:

- Annual environmental performance indicators
  - Water usage
  - Energy usage
  - Waste produced
  - ARDROX 6333 usage
- Qtr4 2015 discharge to sewer report
- Qtr4 2015 discharge to surface water report
- Emissions Monitoring Survey (Boilers & CHPs) 2015

2015 Performance review
In line with the requirements of condition 4.2.1 of our Permit, please find below our annual report.

Airbus Broughton measured its environmental indicators both as normalised data and as absolute data. Again, for 2015, data was normalised against tonnes of 'delivered' product (rather than 'built').

During 2015, Airbus Broughton delivered 8103.8 tonnes of finished product, compared with 8360.6 tonnes in 2014. This is a decrease of 3.07%.

For 2015, Airbus had established the following corporate environmental targets:
- No increase in total waste produced (but non-recycled waste to be reduced by 0.9% per year)
- Reduce CO2 emissions by 3.5% per year
- Achieve a 50% reduction in VOC emissions by 2020, based on a 2006 baseline (this equates to an annual target of 4.83%).
- Reduce water consumption by 1.25% per year

Actual environmental performance on the Airbus Broughton site during 2015 was measured as follows.

No increase in total waste produced, based on 2014 data.
- During 2015 Airbus Broughton reduced total waste produced (excluding swarf and inerts), normalised, by 4.32% (a reduction of 7.26% in absolute terms), based on 2014 data. This equates to 446.48 tonnes of waste.

Explanation *– During 2015 Airbus Broughton achieved significant reductions in many of its waste streams. This is believed to be the result of a number of factors continuing improvements in the impregnated wipes used across the site. Also in 2015 a new vacuum delivery system was introduced for sealant. It is believed that this has improved the efficiency of sealant consumption, Finally, we believe that a number of 'waste roadshows' organised during the year has created better awareness of the issue of waste.*

Reduce non-recycled waste by 0.9%, based on 2014 data.
- During 2015 Airbus Broughton **increased** non-recycled waste produced by 3.98%, normalised, (an increase of 0.79% in absolute terms) based on 2014 data. This equates to 28.3 tonnes of waste.

Explanation *– In 2015 non-recycled waste from the treatments facilities increased by approximately 370 tonnes over the previous year. This was due to additional quality related tank drops when compared with 2014. This increase was offset by reductions in other non-recycled waste streams but unfortunately still resulted in the small increase at the end of year.*

For information, during 2015, recycled waste (disposal codes R2 to R9) reduced by 474.78 tonnes.

Reduce the total energy consumption [as Tonnes CO2] on site by 3.5%, based on 2014 data.

- During 2015, total energy consumption [as tonnes CO2] on the Airbus Broughton site was reduced by 0.92%, normalised, (a reduction of 3.96% in absolute terms), based on 2014 data. This equates to 210.83 tonnes CO2.

Explanation *–. During 2015 there was an ongoing program to replace high bay discharge lighting with LEDs. Also, ongoing maintenance of the compressed air system has shown reduced energy consumption. The combined contribution of lighting and compressed air is approximately 40% of the site energy demand so improvements in these areas make a significant contribution.*

During 2015 the Single Aisle Final Paint Shop was connected to existing Combined Heat and Power (CHP) plant to give greater efficiency.

However, it is believed that another contribution to energy reduction may have been the relatively cool summer (less air conditioning) and mild winter (less heating).

Reduce VOC emissions from Broughton site by 4.83%, based on 2014 data.

- During 2015, total VOC emission on the Airbus Broughton site reduced by 22.49%, normalised, (a reduction of 24.87% in absolute terms), compared to 2014 data. This equates to 63.3 tonnes of VOC.

Explanation *– A number of projects were implemented throughout 2015 and each will have made a contribution to the reduction in VOCs. These were;*

- *Purasolve Wipe size reduction (march 2015)*
- *Lotoxane substitution by A8284 - SMC (march 2015)*
- *Purasolve substitution by A8284 - PAC (march 2015)*
- *Paint substitution with water-based alternative*

All these projects will show a full year benefit in 2016

However, it is believed that the reductions achieved by the above do not account for the 63.3 tonnes achieved. The other contributor to the remainder of the reduction is believed to be the out-sourcing of some of the sub-assembly manufacturing process (bottom skins) to overseas suppliers.

Reduce water consumption on Broughton site by 1.25%, based on 2014 data.

- During 2015, total water consumption on the Airbus Broughton site **increased** 7.96%, normalised, (an increase of 4.65% in absolute terms), compared to 2014 data. This equates to 6036.38 m3 of water.

Explanation *– The increase in water consumption can in part be attributed to the additional tank drops in the treatment facilities (see non-recycled waste, above). In addition, the ongoing installation and commissioning work to implement Tartaric Sulphuric Anodising and Penetrant Flaw Detection will have consumed water during trials.*

Also during 2015, continuing construction of Beluga Line Station in the early part of the year consumed additional volumes water which would not normally be seen. In September a leak in the sprinkler system was detected and fixed.

2016 Environmental Targets

During 2016, as in previous years, each business unit will have an Environmental Management Programme (EMP) with specific projects to reduce the environmental impact of Airbus Broughton activities. These programmes are a requirement of every Airbus site as part of the Airbus Global Certification to ISO14001.

In 2016 Airbus will continue working to achieve the following environmental targets as part of a 2020 roadmap:

- No increase in total waste produced
- Non-recycled waste to be reduced by 0.9% per year
- Reduce CO2 emissions by 3.5% per year
- Achieve a 50% reduction in VOC emissions by 2020, based on a 2006 baseline.
- Reduce water consumption by 1.25% per year

REACh Compliance (including Chromium reduction)

The following report is provided by the Engineering Function and is updated from a report originally submitted in February 2013.

Chromate loaded structural primers are used on metallic substrates only as part of the corrosion protection scheme that includes anodising. Chromate free alternatives are used for composite structures as such corrosion resistance is unnecessary on these parts. For paint layers above structural primer – which do not contribute to corrosion resistance – chromate free alternatives are available and widely used.

Chromate free anodising

From the start of Chromate reduction initiatives the problem has been to achieve a similar level of combined corrosion resistance with a Chromate free anodising / Primer scheme as with the existing chromated combination. By substituting Chromate free Tartaric Sulphuric Acid (TSA) anodising no improvement in the corrosion protection properties of the anodising layer was achieved – meaning that no decline in the corrosion protection properties of the structural Primer could be acceptable. Following various delays the TSA project has reached implementation stage and plant modifications will continue through 2016 to enable this.

TSA will be fully applied to aircraft parts from January 2017 onwards. 100% of parts will be inspected via Penetrant Flaw Detection (PFD) prior to TSA treatment.

Chromate free primer

Airbus's approach to Chromate free structural primer has been co-ordinated trans-nationally for the whole of Airbus by the Engineering Function who are responsible to ensure that the technical capabilities of the paint are achieved. Together with Manufacturing Engineering and Procurement we have partnered with the main aerospace paint suppliers to attempt to develop a Chromate free corrosion suppressing structural primer to use in conjunction with our chromate free anodising processes. This approach – different to the in house development of the TSA anodising – was selected primarily

1. Because Airbus has no specialised paint development skill set
2. Because Chromate free aerospace paint chemistry already exists and in many cases is patented
3. Because our suppliers have specialist paint development laboratories that can be used to develop paints available generally in the market

Initial development of Chromate free paints was started in the early 2000's and some paints got as far as trials by around 2004, but were not acceptable on a number of fronts.

A second round of paint development culminated in Technology Readiness Level (TRL) 3 being passed on five separate paints from four suppliers. This triggers both industrial (ease of preparation, application, thickness management and drying) and detailed technical (corrosion resistance, adhesion, abrasion and chemical attack resistance etc.) testing at TRL level 4.

Following a review of the results three of the four suppliers have undertaken to further develop chromate free paints but unfortunately not by further enhancing the paints that failed the 2012 TRL review but by approaching the problem with different technologies. The project is now an international collaboration between all interested paint manufacturing companies TRL 2 has been completed in November 2014 and TRL 3 is planned for Q1 2016. Despite considerable investment by Airbus and it's suppliers this means it is unlikely that the technology will be implemented by the sunset date for Strontium Chromate sept 2017. Therefore, as required under REACh regulations, a collaborative group of Airbus' paint suppliers and raw material suppliers are preparing the authorization documentation to enable continued use of Chromated basic primer beyond sept 2017.

Alodine replacement
Again the supply chain attempts to develop a suitable alternative to this product have failed and an authorization document is under preparation with suppliers.

Mastinox replacement
Replacement of chromated sealant (Mastinox) was implemented during 2014 as a Chromate reduction action.

Alusol replacement
During 2014, Airbus Broughton was informed by Castrol that it planned to cease production of Alusol AD by September 2015. Alusol AD is the primary cutting fluid used for machining of aluminium at Broughton, with 2014 consumption in the region of 38,000L. The reasons given by Castrol for ceasing production included the introduction of new labelling requirements across Europe and the requirements of REACH – specifically removal of borates.

The initially proposed date of September 2015 for cessation of manufacture of this product did not provide a long enough timescale for Airbus to qualify a replacement product. Therefore, Procurement entered into negotiations with Castrol and secured an extended supply date of "end of 2016". Qualification of an alternative Castrol product (Hysol SL 54 XBB) during 2016, to enable the replacement of Alusol AD at Broughton is being actively pursued. The new Hysol product is borate-free, and it is intended to be qualified in advance of the February 2020 sunset date for borates.

Should you have any further questions please do not hesitate to contact me.

Yours sincerely,

Andy Denton
Environment Officer
Airbus Operations, Broughton
Tel: 01244 524252